

Acts Propagation Terminals

Engineering Support and Systems Upgrades

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Software Status / Deficiencies and Known Problems

DRX software status:

Current version 17 of 4/25/96.

Fixed data dropouts during High Data Rate Collection,

Fixed FFT coding error.

DACS software status:

Current version 10 of 4/01/96.

Improved automatic restart of DRX.

TSR software status:

Current version 10 of 4/01/96.

Will Automatically collect High Data Rate data.

Will Accept GPS Time via RS-232.

Data missing from RVO; Defragment Disk.

ActsView software status:

Current version 3 of 9/26/94.

Need to be able to read CD directly.

Need to add display of tipping bucket gauge.

Actspp Preprocessing software status:

Current version 6.9 of 5/22/96,

System Hardware Status / Deficiencies and Known Problems

27 Beacon one-second dropouts.

Cause is the master local oscillator is microphonic.

The DRX fans create low-frequency shaking.

Solution is to replace fans and loosen 7 of the 8 mounting bolts.

Bad LNBs.

20-GHz LNB at OU has low gain and high noise figure.

Awaiting repaired unit to install, but not losing data now.

May have unstable 20-GHz LNB at CSU.

Radiometer 0.25 -0.5 Volt Jumps

This effect is seen at several sites.

Cause is being investigated.

W clock:

Problems: Start up & signal loss; Date jumps.

Solution: Code changes in DACS TSR should prevent data loss.

The GPS solution at UAF has been installed.

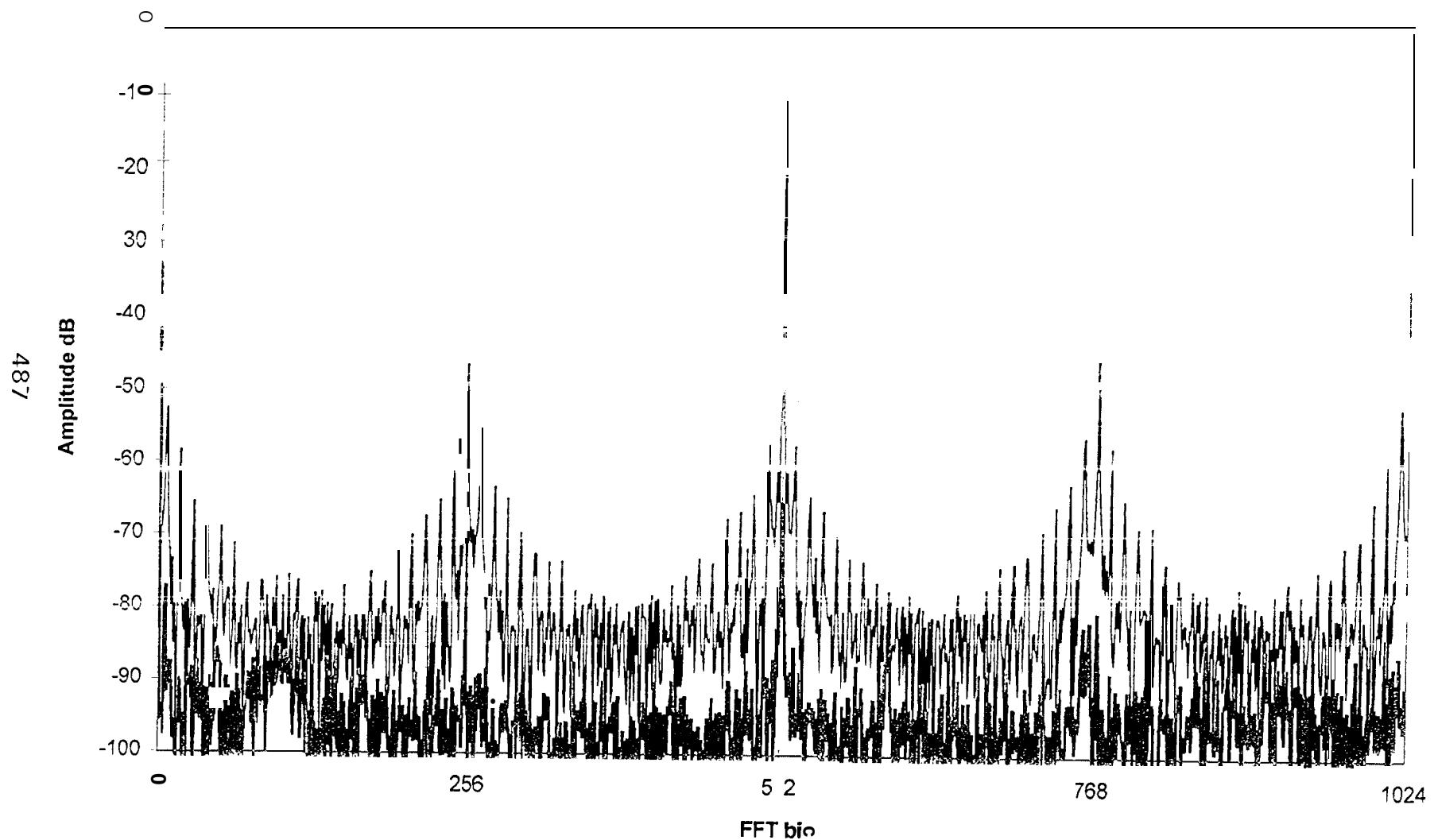
Summary plots of Digital Receiver Investigation and Correction Efforts

Summary plots of the Sites System Calibration to Date

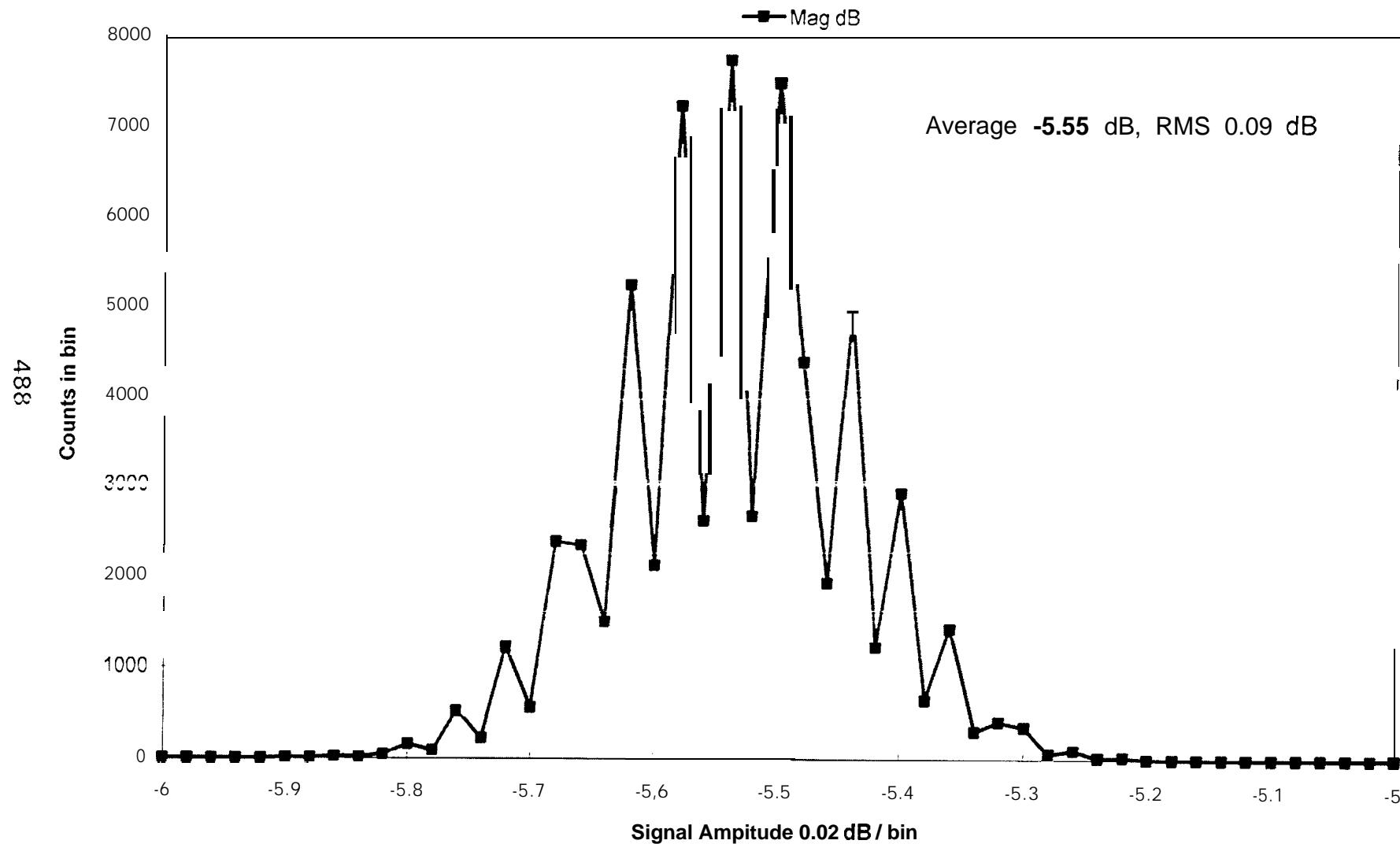
All Sites Data Accumulation Summary

1 K FFT Spectrum Side Lobes

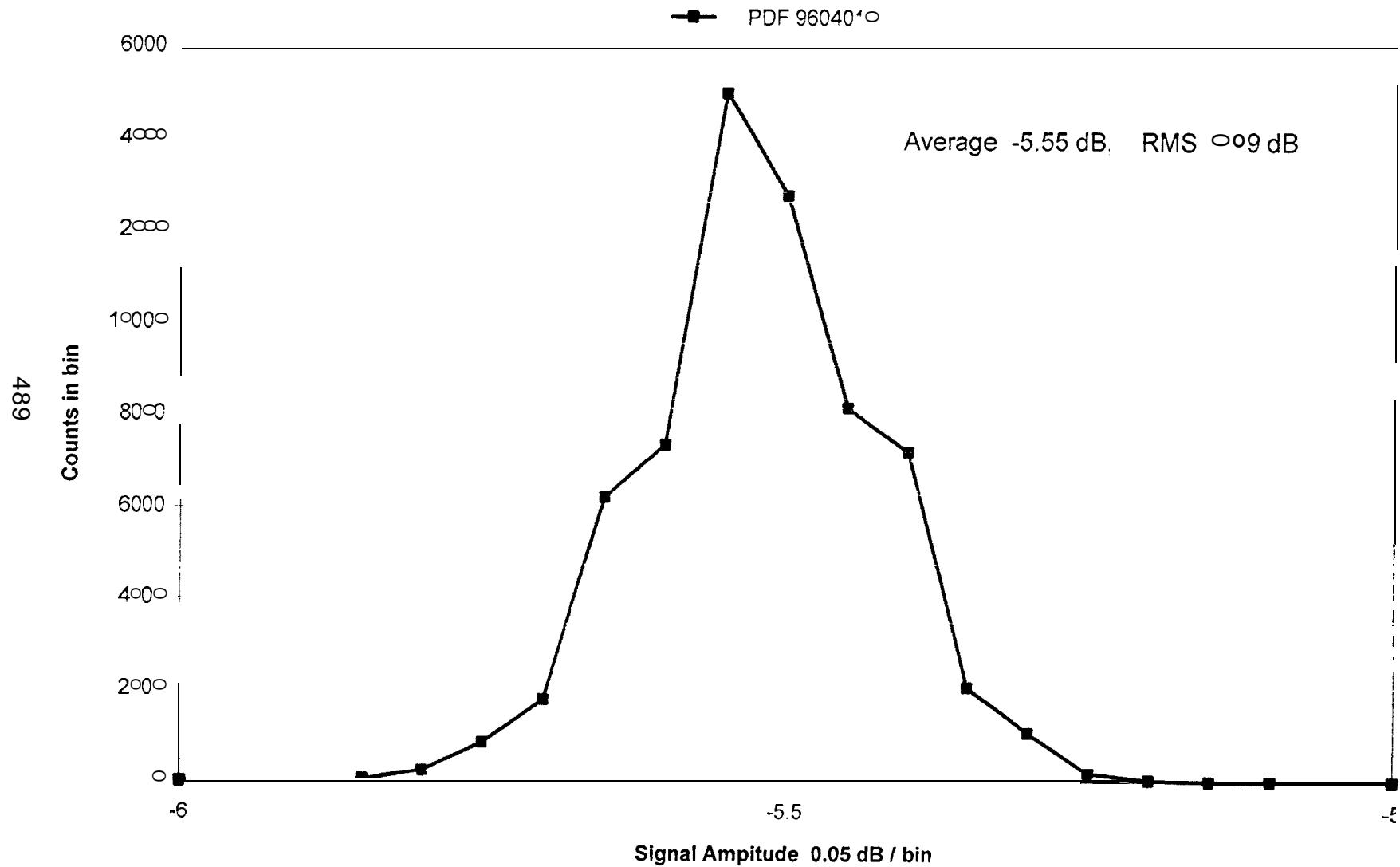
— Signal -10dB - - - Signal -40dB



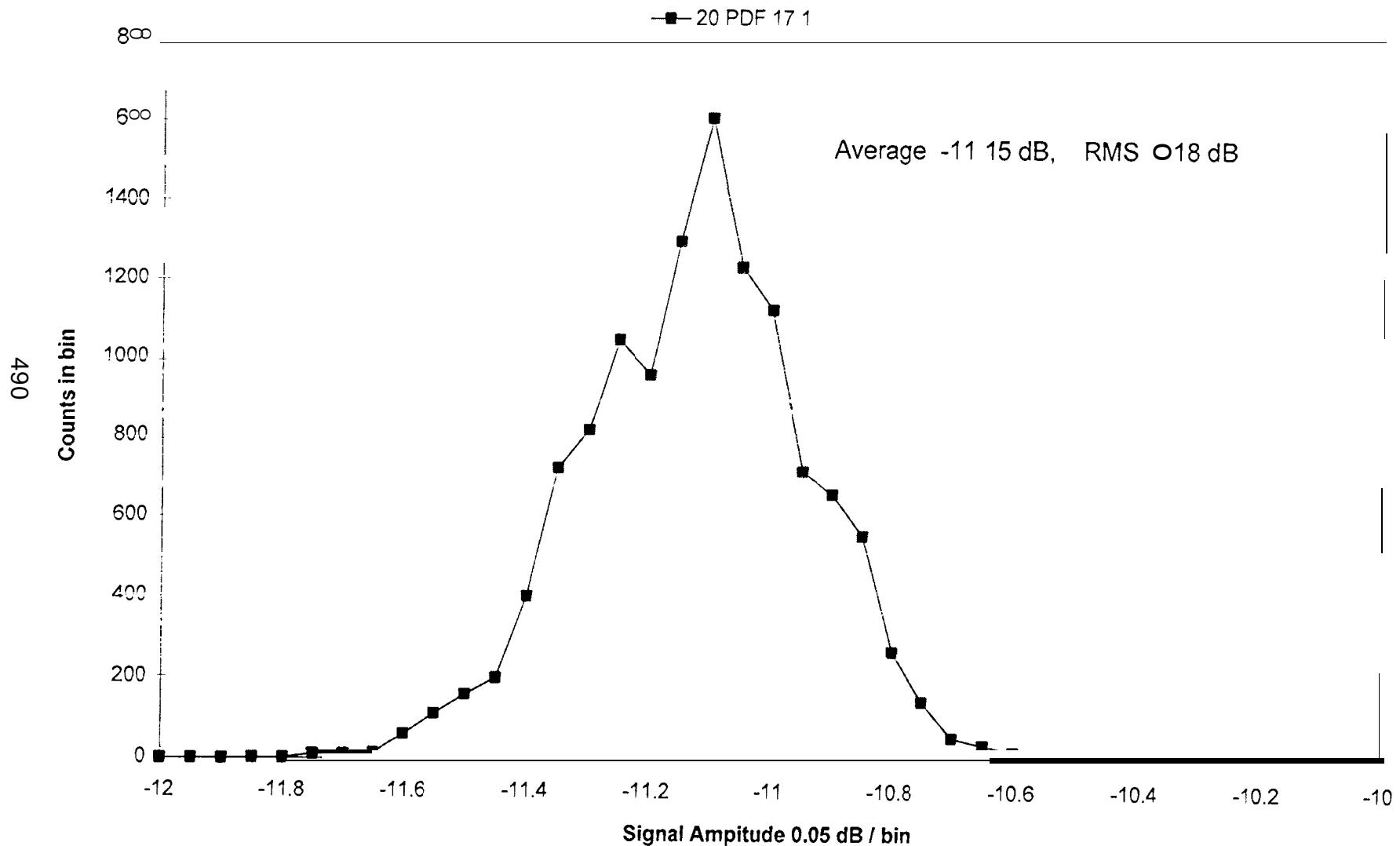
High Data Rate Amplitude Histogram at 0.02 dB / bin



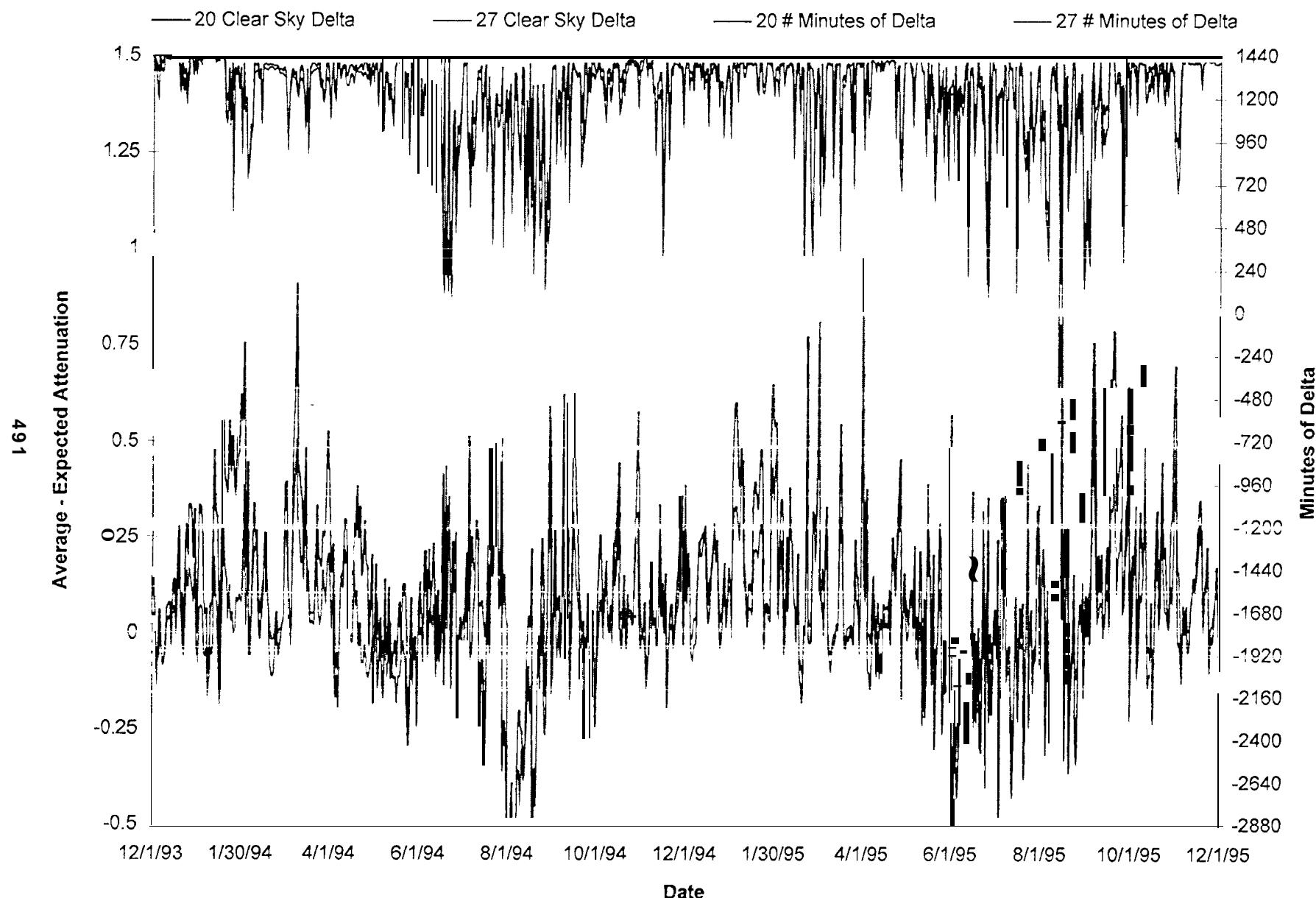
High Data Rate Amplitude Histogram at 0.05 dB / bin



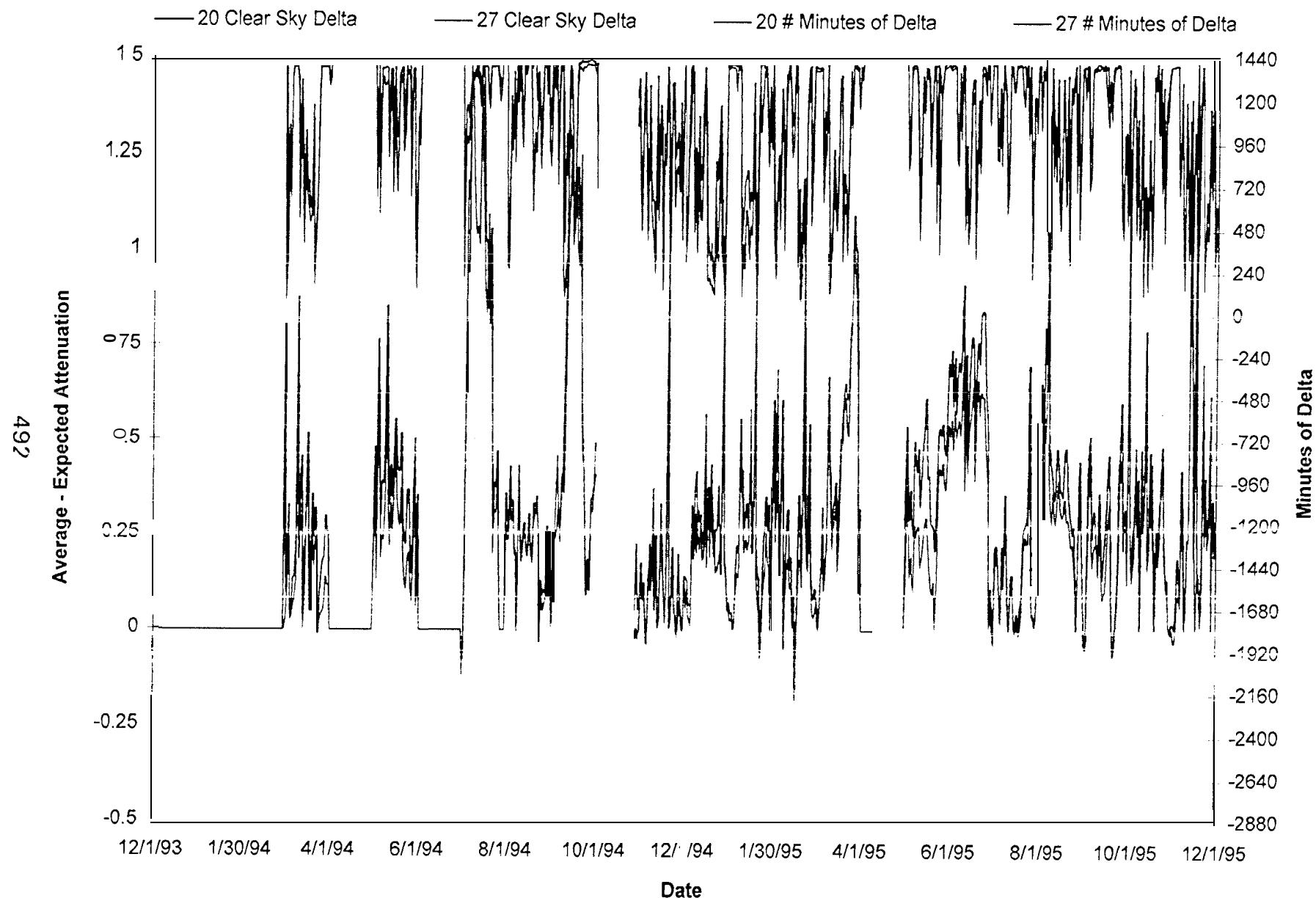
High Data Rate Amplitude Histogram at 0.05 dB / bin



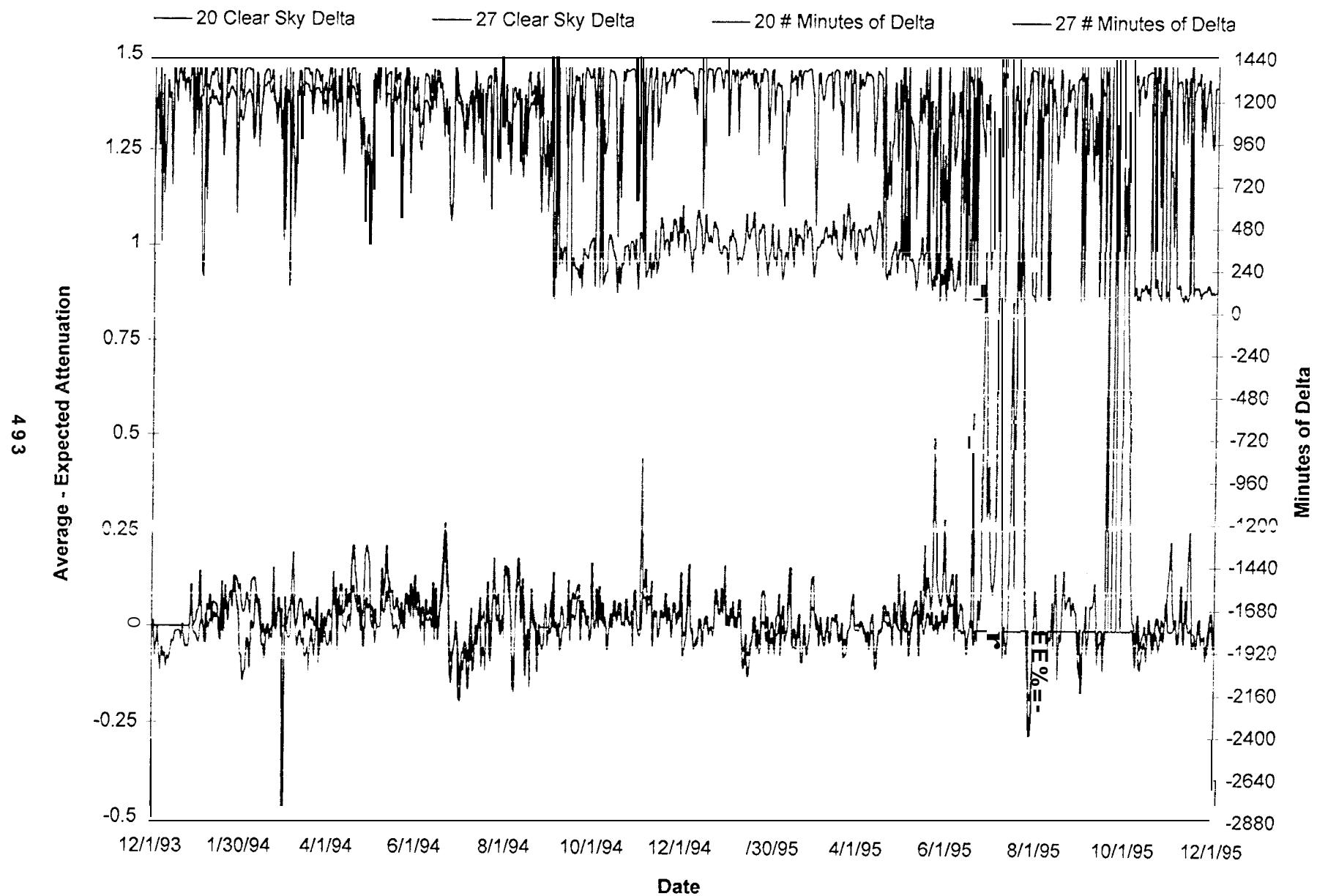
AK System Calibration



BC System Calibration

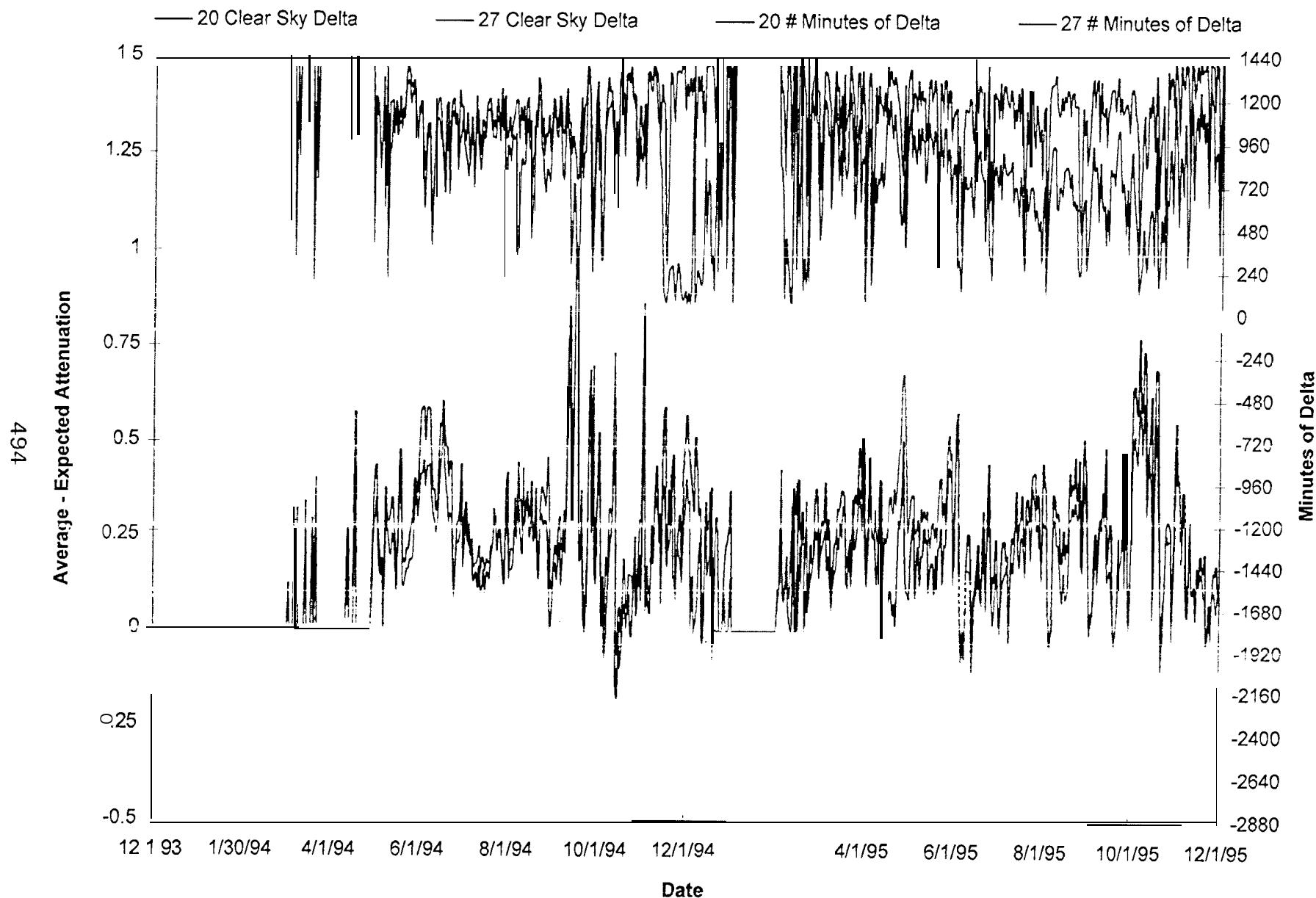


CO System Calibration

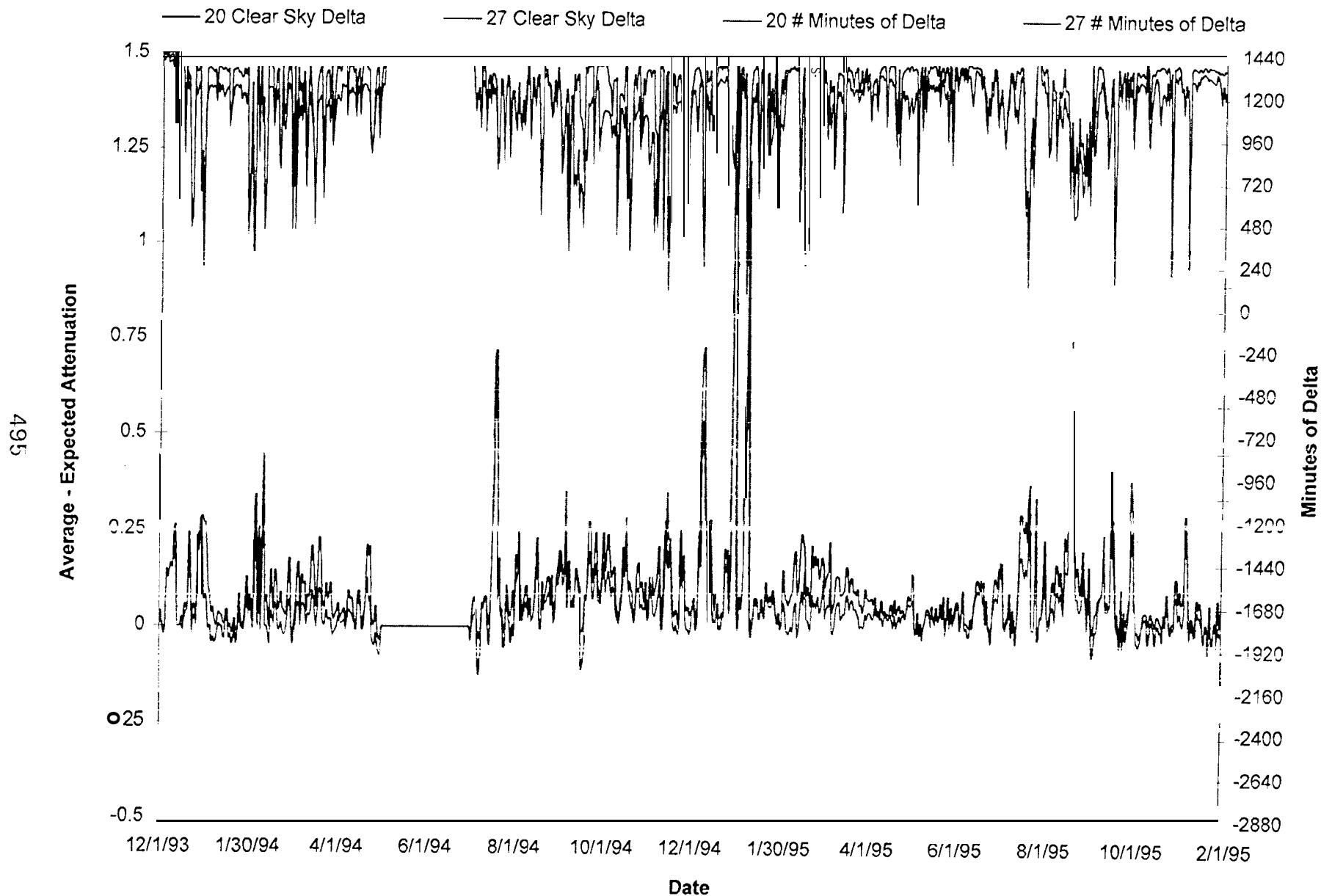


XLS

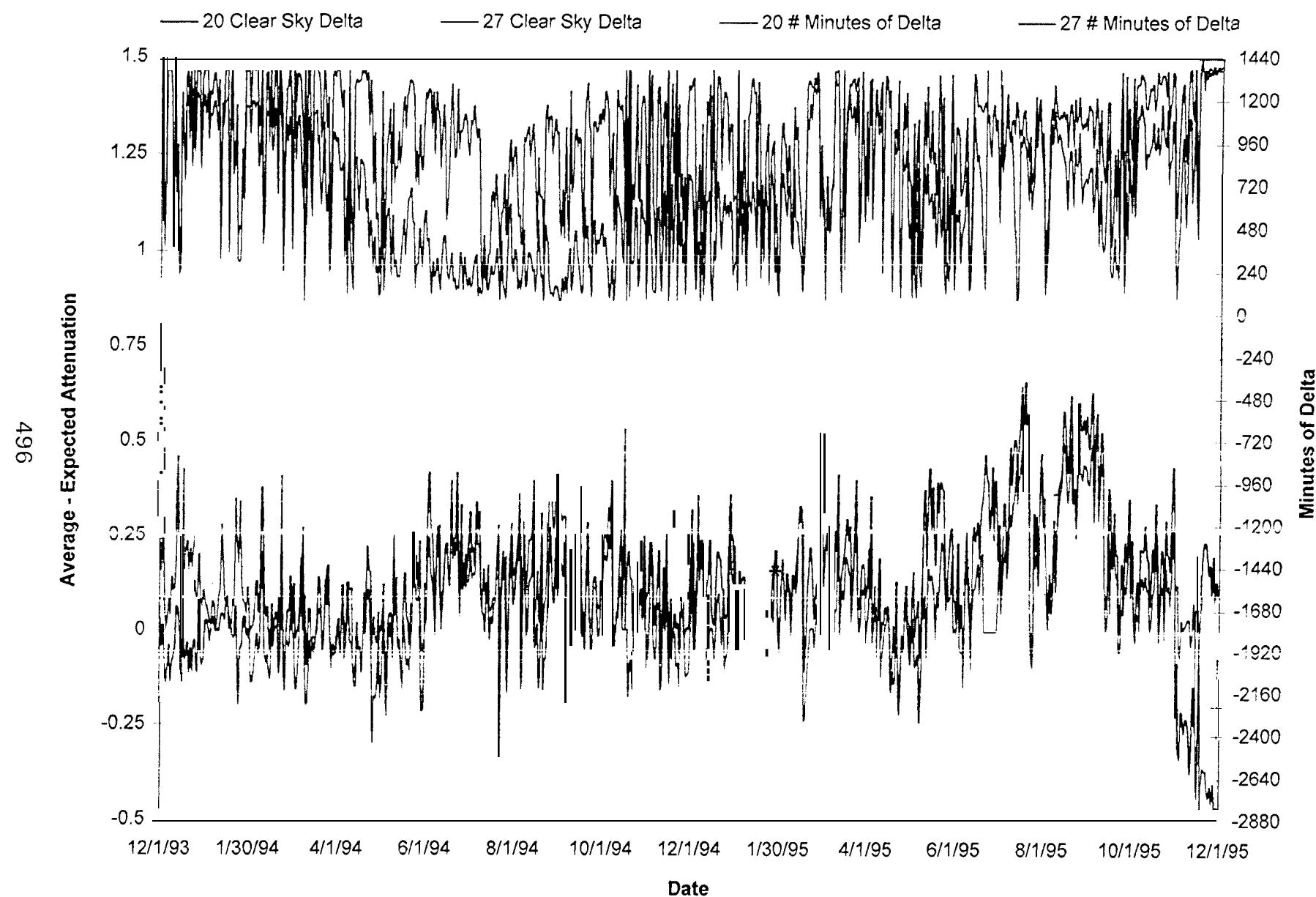
FL System Calibration



NM System Calibration



OK System Calibration



**Ka-Band Propagation Studies Using the ACTS
Propagation Terminal and the CSU- CHILL
Multiparameter Radar**

(A Two Year Report)

Experiment ers

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Investigators

V. N. Bringi, Professor
John Beaver

**NASA Propagation Experimenters Meeting
(NAPEX XX)
June 4-6, 1996
Fairbanks, Alaska**